treatment of the samples during first cycle of measurement (in $\sim 10^{-3}$mm) changed the absolute values of the magnetisation and susceptibility, along both the directions considerably, nature of temperature variation of these quantities not being very much affected, only the changes near the transition region becoming flatter. The susceptibility at the Néel temperature and the Néel temperature itself however remain nearly the same as earlier observed i.e. $\sim 20 \times 10^{-6}$ C.G.S., e.m.u and 955 ± 5°K respectively and are not affected by heat treatment.

Crystalline defects to which all these observations may be ascribed are presumably in the form of dislocations or substitutions in the sublattices rather than in the form of any ferromagnetic impurity such as magnetite etc., in which case there ought to have been a sharp discontinuity in the temperature variation of the magnetisation curve at the Curie temperature of the impurity.

Further investigations to explain the above observations in view of its structural and chemical aspects is in progress.

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MICROWAVE SPECTRA OF ETHYLAMINE MOLECULE

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The ethylamine molecule is an asymmetric rotor. Exhaustive thermodynamic and infrared studies have not been made on this molecule. Some microwave absorption lines of ethylamine were observed by Matricon and Bonnet (1954). We have remeasured these lines and have extended the range of investigation.

The frequency range covered is 18.5 KMc/S to 26.0 KMc/S. Raytheon 2*K* 33B Klystron was used. In the region 20.5 K Mc/S—21.5K Mc/S the klys-

tron presented a dead zone. The stark cell is an ordinary X-band wave guide section, about 8 ft. long. A variable amplitude square wave stark modulation at 100 Kc/s was used. The microwave power emerging from the cell was detected by a IN26 crystal. The frequencies of the absorption lines were measured accurately by beating the Klystron frequency with standard markers in a IN26 mixer crystal. Standard frequency at 100 kc/s was obtained from a primary frequency standard (General Radio AP 1100). More than sixty lines and their

TABLE 1

Observed lines of Ethylamine

Frequency	Stark effect	Intensity	Frequency	Stark effect	Intensity
18511.95	1→2(+)	S	22564.26	2(+)	S
18625.30	2(+)	WW	22588.27	2(+)	WW
18655.63	1→2(+)	M	22603.46	2(+)	MS
18666.91	1→2(+)	M	22618.40	2(+)	S
18726.69	2(+)	M	22624.90	(?)	WW
18772.60	1→2(+)	W	22625.62	(?)	WW
18866.00	(?)	WW	22635.75	2(+)	S
19004.38	(?)	MS	22642.13	2(+)	S
19006.32	(?)	MS	22708.45	2(+)	M
19166.91	1→2(+)	MS	22751.49	2(+)	M
19187.43	1→2(+)	S	22752.32	2(+)	M
19254.43	1→2(+)	MS	22815.10	2(+)	WW
19329.01	2(+)	WW	22815.90	2(+)	WW
19343.03	2(+)	M	22909.39	2(+)	M
19497.10	1→2(+)	M	22975.50	2(+)	M
19700.86	2(+)	S	23195.67	2(+)	MW
19765.80	2(+)	M	23264.59	2(+) or	
19826.80	2(+)	M		1→2(+)	S
19900.55	1→2(+)	M	23369.67	2(+)	WW
20145.73	2(+)	M	23675.10	2(+)	WW
20237.69	2(+)	M	23928.30	1→2(+) or	
				2(+)	W
20311.52	2(+)	M			
21679.50	2(+)	WW	24027.49	2(+)	W
21729.20	2(+)	M	24261.88	2(+)	W
21730.25	2(+)	M	24291.00	2(+)	W
21736.25	2(+)	W	24418.40	2(+)	S
21767.10	2(+)	W	24802.64	2(+)	MS
21768.60	2(+)	W	24937.96	2(+)	M
21956.70	2(+)	M	25224.51	2(+)	W
22129.60	2(+)	S	25329.98	2(+)	S
22145.07	2(+)	MS	25396.85	2(+)	MS
22147.64	2(+)	MS	25562.15	2(+)	WW
			25977.37	2(+)	S

stark effects have been studied. The measured frequencies and intensities as well as the nature of their stark effects are listed in Table 1.

The intensities are termed S, MS, M, W and WW in order of their strengths. The nature of the stark effects observed on the various lines are : 1) 2(+) This denotes a second order stark effect, the stark components shifting to the higher frequency side of the line with increasing stark field. 2) 1→2(+). This denotes lines which show a typical first order behaviour with the application of low stark fields and as the field is increased the second order stark effects sets in.

The presence of large number of absorption lines may be attributed to the splitting due to internal rotation in the molecule and due to inversion doubling. Detailed theo- retical and experimental work is in progress and will be communicated later on with necessary details of the experimental set up.

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